CURRICULUM VITAE

NAME:

Richard D. Abramson

BUSINESS ADDRESS:

Program in Core Research

Roche Molecular Systems, Inc.

1145 Atlantic Avenue Alameda, California 94501

(510) 814-2906

HOME ADDRESS:

5901 Broadway Apt. #30

Oakland, California 94618

(510) 655-8152

DATE AND PLACE OF BIRTH:

February 21, 1958, Cleveland, Ohio

EDUCATION:

Aug. 1982-Aug. 1987

Case Western Reserve University, Cleveland, Ohio

Ph.D. in Biochemistry (8/17/87)

Advisor: Dr. William C. Merrick

Dissertation: Messenger RNA-Specific Eukaryotic Initiation Factors

Sept. 1979-June 1981

New College, Sarasota, Florida

Aug. 1978-May 1979

Yale University, New Haven, Connecticut

March 1976-June 1978

New College, Sarasota, Florida

EMPLOYMENT HISTORY:

Dec. 1991-Present

Research Investigator, Program in Core Research

Roche Molecular Systems, Inc., Alameda, CA 94501

Supervisor: Dr. David H. Gelfand

July 1989-Dec. 1991

Postdoctoral Associate Scientist, Core Technology

Polymerase Chain Reaction (PCR) Division Cetus Corporation, Emeryville, CA 94608

Supervisor: Dr. David H. Gelfand

Sept. 1987–June 1989 Research Associate, Institute for Molecular Genetics,

Baylor College of Medicine, Houston, TX 77030

Supervisors: Drs. Arthur L. Beaudet and William E. O'Brien

Aug. 1981-Aug. 1982 Junior Research Assistant, Department of Biochemistry,

Case Western Reserve University, Cleveland, OH 44106

Supervisor: Dr. Howard Gershman

MEMBERSHIPS:

American Society for Microbiology American Society for Biochemistry and Molecular Biology

PUBLICATIONS

- Grifo, J.A., Abramson, R.D., Satler, C.A. and Merrick, W.C. 1984. RNA-stimulated ATPase activity of eukaryotic initiation factors. J. Biol. Chem. <u>259</u>, 8648-8654.
- Ray, B.K., Lawson, T.G., Kramer, J.C., Cladaras, M.H., Grifo, J.A., Abramson, R.D., Merrick, W.C. and Thach, R.E. 1985. ATP-dependent unwinding of messenger RNA structure by eukaryotic initiation factors. J. Biol. Chem. 260, 7651-7658.
- Merrick, W.C., Abramson, R.D., Caliendo, A.M., Grifo, J.A. and Dever, T.E. 1986.
 "Binding of initiation factors to mRNA" in <u>Current Communications in Molecular Biology:</u>
 <u>Translational Control</u> (ed. M.B. Mathews) Cold Spring Harbor Laboratories, Cold Spring Harbor, N.Y. p 19-24.
- Lawson, T.G., Ray, B.K., Abramson, R.D., Merrick, W.C. and Thach, R.E. 1986. "Effect of secondary structure on eukaryotic mRNA translation, and its unwinding by initiation factors" in <u>Current Communications in Molecular Biology: Translational Control</u> (ed. M.B. Mathews) Cold Spring Harbor Laboratories, Cold Spring Harbor, N.Y. p 25-39.
- 5. Ray, B.K., Lawson, T.G., Abramson, R.D., Merrick, W.C. and Thach, R.E. 1986. Recycling of messenger RNA cap-binding proteins mediated by eukaryotic initiation factor 4B. J. Biol. Chem. 261, 11466-11470.
- Lawson, T.G., Ray, B.K., Dodds, J.T., Grifo, J.A., Abramson, R.D., Merrick, W.C., Betsch, D.F., Weith, H.L. and Thach, R.E. 1986. Influence of 5'-proximal secondary structure on the translational efficiency of eukaryotic mRNAs and on their interaction with initiation factors. J. Biol. Chem. 261, 13979-13989.
- Abramson, R.D., Dever, T.E., Lawson, T.G., Ray, B.K., Thach, R.E. and Merrick, W.C. 1987. The ATP-dependent interaction of eukaryotic initiation factors with mRNA. J. Biol. Chem. 262, 3826-3832.
- 8. Merrick, W.C., Abramson, R.D., Anthony, D.D., Jr., Dever, T.E. and Caliendo, A.M. 1987. "Involvement of nucleotides in protein synthesis initiation" in <u>Translational Regulation of Gene Expression</u> (ed. J. Ilan) Plenum Publishing Corp, New York, N.Y. p 265-286.
- Abramson, R.D., Browning, K.S., Dever, T.E., Lawson, T.G., Thach, R.E., Ravel, J.M. and Merrick, W.C. 1988. Initiation factors that bind mRNA: A comparison of mammalian factors with wheat germ factors. J. Biol. Chem. 263, 5462-5467.
- 10. Abramson, R.D., Dever, T.E. and Merrick, W.C. 1988. Biochemical evidence supporting a mechanism for cap-independent and internal initiation of eukaryotic mRNA. J. Biol. Chem. 263, 6016-6019.
- Lawson, T.G., Cladaras, M.H., Ray, B.K., Lee, K.A., Abramson, R.D., Merrick, W.C. and Thach, R.E. 1988. Discriminatory interaction of purified eukaryotic initiation factors 4F plus 4A with the 5' ends of reovirus messenger RNAs. J. Biol. Chem. 263, 7266-7276.

- 12. McMullin, E.L., Haas, D.W., Abramson, R.D., Thach, R.E., Merrick, W.C. and Hagedom, C.H. 1988. Identification of a protein kinase activity in rabbit reticulocytes that phosphorylates the mRNA cap binding protein. Biochem. Biophys. Res. Commun. 153, 340-346.
- 13. McMullin, E.L., Hogancamp, W.E., Abramson, R.D., Merrick, W.C. and Hagedorn, C.H. 1988. Phosphorylation of the p220 subunit of eIF-4F by cAMP dependent protein kinase and protein kinase C *in vitro*. Biochem. Biophys. Res. Commun. 153, 925-932.
- Mick, S.J., Abramson, R.D., Ray, B.K., Merrick, W.C., Thach, R.E. and Hagedorn, C.H. 1988. Induction of eIF-4E phosphorylation by the addition of L-pyrroline-5-carboxylic acid to rabbit reticulocyte lysate. FEBS Lett. 236, 484-488.
- 15. Lawson, T.G., Lee, K.A., Maimone, M.M., Abramson, R.D., Dever, T.E., Merrick, W.C. and Thach, R.E. 1989. Dissociation of double-stranded polynucleotide helical structures by eukaryotic initiation factors, as revealed by a novel assay. Biochemistry 28, 4729-4734.
- Abramson, R.D., Barbosa, P., Kalumuck, K. and O'Brien, W.E. 1991. Characterization of the human argininosuccinate lyase gene and analysis of exon skipping. Genomics <u>10</u>, 126-132.
- 17. Holland, P.M., Abramson, R.D., Watson, R. and Gelfand, D.H. 1991. Detection of specific polymerase chain reaction product by utilizing the 5'→3' exonuclease activity of *Thermus aquaticus* DNA polymerase. Proc. Natl. Acad. Sci. USA <u>88</u>, 7276-7280.
- 18. Holland, P.M., Abramson, R.D., Watson, R., Will, S., Saiki, R.K. and Gelfand, D.H. 1992. Detection of specific polymerase chain reaction product utilizing the 5'→3' exonuclease activity of *Thermus aquaticus* DNA polymerase. Clinical Chemsitry, 38, 462-463.
- 19. Abramson, R.D. and Myers, T.W. 1993. Nucleic acid amplification technologies. Current Opinion in Biotechnology, 4, 41-47.
- 20. Lawyer, F.C., Stoffel, S., Saiki, R.K., Chang, S.-Y., Landre, P.A., Abramson, R.D. and Gelfand, D.H. 1993. High level expression, purification, and enzymatic characterization of full-length *Thermus aquaticus* DNA polymerase and a truncated form deficient in 5' to 3' exonuclease activity. PCR Methods Applic., 2, 275-287.
- Abramson, R.D. 1994. "Thermostable DNA Polymerases" in <u>PCR Strategies</u> (eds. M. Innis, D. Gelfand and J. Sninsky) Academic Press, Inc., San Diego, CA. Manuscript in press
- 22. Abramson, R.D., Stoffel, S. and Gelfand, D.H. 1994. Extension rate and processivity of *Thermus aquaticus* DNA polymerase. Manuscript in preparation.
- 23. Abramson, R.D. and Gelfand, D.H. 1994. Characterization of the 5'-3' exonuclease activity of *Thermus aquaticus* DNA polymerase. Manuscript in preparation.

ABSTRACTS

- Merrick, W.C., Abramson, R.D., Caliendo, A. and Grifo, J.A. 1985. Properties of the mRNA discriminating proteins eIF-4A and eIF-4F. UCLA Symposia - Sequence Specificity in Transcription and Translation.
- 2. Abramson, R.D., Caliendo, A.M., Grifo, J.A. and Merrick, W.C. 1985. Properties of eukaryotic initiation factor 4A. Fed. Proc. 44, 1223.
- Hagedorn, C.H., Bielser, D.A., Abramson, R.D., Merrick, W.C. and Thach, R.E. 1985. L-pyrroline-5-carboxylase stimulates phosphorylation of the 26 kD component of eIF-4F and inhibits translation of globin mRNA. 13th International Congress of Biochemistry, Amsterdam, The Netherlands.
- Merrick, W.C., Abramson, R.D., Caliendo, A.M. and Grifo, J.A. 1985. Function of the protein synthesis initiation factors which bind mRNA. 13th International Congress of Biochemistry, Amsterdam, The Netherlands.
- 5. Anthony, D.D., Dever, T.E., Abramson, R.D., Lobur, M. and Merrick, W.C. 1986. Affinity labeling of protein synthesis factors. Fed. Proc. 45, 1768.
- 6. Abramson, R.D., Dever, T.E., Ray, B.K., Lawson, T.G., Thach, R.E. and Merrick, W.C. 1986. Binding of initiation factors to mRNA. Fed. Proc. 45, 1768.
- 7. Lawson, T.G., Ray, B.K., Grifo, J.A., Abramson, R.D., Merrick, W.C., Betsch, D.F., Weith, H.L. and Thach, R.E. 1986. Influence of 5' proximal secondary structure on the translational efficiency of eukaryotic mRNAs and on their interaction with initiation factors. EMBO Workshop on Eukaryotic Protein Synthesis, Patras, Greece.
- 8. Abramson, R.D., Dever, T.E., Ray, B.K., Lawson, T.G., Thach, R.E. and Merrick, W.C. 1986. Binding of initiation factors to mRNA. EMBO Workshop on Eukaryotic Protein Synthesis, Patras, Greece.
- Abramson, R.D., Browning, K.S., Dever, T.E., Ravel, J.M. and Merrick, W.C. 1987. Initiation factors that bind mRNA: a comparison of mammalian factors with wheat germ factors. Fed. Proc. 46, 2185.
- 10. Thach, R.E., Lawson, T.G., Lee, K.A., Abramson, R.D. and Merrick, W.C. 1987. Dissociation of 5' proximal helical regions in messenger RNAs by eukaryotic initiation factors 4F, 4A, and 4B. Fed. Proc. 46, 2185.
- 11. Lawson, T.G., Cladaras, M.H., Ray, B.K., Lee, K.A., Abramson, R.D., Merrick, W.C. and Thach, R.E. 1987. Discrimination among reovirus messenger RNAs by eukaryotic initiation factors 4F plus 4A: the roles of cap accessibility and 5' proximal secondary structure. Fed. Proc. 46, 2183.

- 12. Merrick, W.C., Abramson, R.D. and Dever, T.E. 1987. Initiation factors that bind mRNA: possible new beginnings. Translational Control Symposium, Cold Spring Harbor.
- 13. Merrick, W.C., Abramson, R.D. and Dever, T.E. 1988. Binding of eukaryotic initiation factors: tentative rules for 5' and internal initiation. ICN-UCLA Symposium.
- Abramson, R.D., Chen, H. and O'Brien, W.E. 1988. Structure and evolution of the human argininosuccinate lyase gene. J. Cell Biol. <u>107</u>, 522a.
- Rychlik, W., Chavan, A., Abramson, R.D., Etchison, D., Ravel, J.M., Merrick, W.C., Watt, D.S., and Rhoads, R.E. 1988. Photoaffinity labeling of protein synthesis initiation factors with a new m⁷GTP derivative. J. Cell Biol. <u>107</u>, 547a.
- Abramson, R.D., Stoffel, S. and Gelfand, D.H. 1990 Extension rate and processivity of Thermus aquaticus DNA polymerase. FASEB J. 4, A2293.
- 17. Abramson, R.D., Holland, P.M., Watson, R. and Gelfand, D.H. 1991 Characterization of the 5'→3' exonuclease activity of *Thermus aquaticus* DNA polymerase. FASEB J. <u>5</u>, A437.
- 18. Holland, P.M., Watson, R., Abramson, R.D. and Gelfand, D.H. 1991 A novel method for detecting polymerase chain reaction product utilizing the 5'-3' exonuclease activity of *Thermus aquaticus* DNA polymerase. FASEB J. <u>5</u>, A621.
- Abramson, R.D. 1991 Enzymology of thermostable DNA polymerases used in the polymerase chain reaction. Invited speaker, IBEX'91, San Francisco, CA
- 20. Abramson, R.D., Holland, P.M., Watson, R. and Gelfand, D.H. 1992 Characterization of the 5'-3' exonuclease activity of *Thermus aquaticus* DNA polymerase. J. Cell. Biochem. Supplement 16B, 23.
- Abramson, R.D. and Gelfand, D.H. 1992 Characterization of the strand displacement and nick translation activities of *Thermus aquaticus* DNA polymerase. Abstracts of the 92nd General Meeting of the American Society for Microbiology, 200.
- 22. Holland, P.M., Watson, R., Abramson, R.D. and Gelfand, D.H. 1992 A novel method for specific detection of *Borrelia burgdorferi* by utilizing the 5'→3' exonuclease activity of *Thermus aquaticus* DNA polymerase in a polymerase chain reaction assay. Abstracts of the 92nd General Meeting of the American Society for Microbiology, 524.
- 23. Spurgeon, S., Koepf, S. and Abramson, R.D. 1993. Automated fluorescent cycle sequencing with *Taq* and other thermophilic DNA polymerases. Genome Sequencing and Analysis Conference V, Hilton Head, SC.